

Amendments to the Specification:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A method of generating a protein array, ~~which comprises cloning and expressing one or more proteins as full length proteins which are each tagged at either the N- or C-terminus with a marker moiety~~ the method comprising:

(a) inserting a marker DNA sequence in frame immediately following a start codon of each of a plurality of target DNA sequences or immediately preceding a stop codon of each of a plurality of target DNA sequences or both, to form a plurality of modified DNA sequences which encode a plurality of modified amino acid sequences each comprising a marker moiety;

(b) expressing the plurality of modified amino acid sequences from the plurality of modified DNA sequences;

(c) bringing the plurality of modified amino acid sequences into contact with a solid support wherein the marker moiety of the plurality of modified amino acid sequences is able to attach to the solid support, thereby generating a protein array, and

(d) washing said solid support to remove unbound proteins.

2. (Currently amended) A The method as claimed in claim 1 wherein the ~~tag~~ marker moiety is a peptide sequence, ~~eg selected from the group consisting of:~~

(a) a histidine tag[,];

(b) a complete protein or protein domain[,]; and eg

(c) [the] a maltose binding protein domain.

3. (Currently amended) [A] The method as claimed in claim 1 ~~or claim 2~~ wherein the ~~tag~~ marker moiety allows for purification of the individual proteins in the array.

4. (Currently amended) [A] ~~The method as claimed in any one of claims 1 to 3 of claim 1~~ wherein the ~~tag~~ marker DNA sequence is inserted such that the start or stop codon for each of the proteins is replaced.

5-7. (Canceled).

8. (Currently amended) A method of screening one or more compounds for biological activity which comprises: ~~the step of~~

(a) bringing said one or more compounds into contact with [a] ~~the protein~~ array as ~~defined in~~ made according to any one of claims 1 to 4 5 to 7; and

(b) measuring binding of the one or more compounds to the proteins in the array.

9. (Currently amended) A method of screening one or more proteins for specific protein-protein interactions which comprises the step of bringing said one or more proteins, ~~eg a cell surface receptor~~, into contact with an array made according to ~~as defined in~~ any one of claims 1 to 4 5 to 7, and measuring binding of the one or more specific proteins with the proteins of the array.

10. (Currently amended) A method of screening one or more proteins for specific ~~protein-nucleic acid~~ interactions with one or more nucleic acid probes which comprises the step of bringing said one or more nucleic acid probes into contact with an array made according to ~~as defined in~~ any one of claims 1 to 4 5 to 7, and measuring binding of the probes to the proteins in the array.

11. (Currently amended) ~~The use of an array as defined in any one of claims 5 to 7 in the A method for the rapid screening of a test compound, test protein or test nucleic acid, the method comprising:~~

(a) contacting the test compound, test protein or test nucleic acid with a spatially defined array produced according to any one of claims 1-4 comprising a plurality of array bound

proteins, with each array bound protein being at a different position on a solid support, wherein the plurality of array bound proteins comprises a plurality of different proteins expressed in a single species; and

(b) detecting any interaction between the array bound proteins and the test compound, test protein or test nucleic acid.

12. (Currently amended) ~~The use of an array as defined in any one of claims 5 to 7 in A~~ method of screening for molecules which recognize each protein in the array, the method comprising:

(a) contacting the molecules with a spatially defined array comprising a plurality of array bound proteins produced according to any one of claims 1-4, with each array bound protein being at a different position on a solid support, wherein the plurality of array bound proteins comprises a plurality of different proteins expressed in a single species; and

(b) detecting any interaction between the array bound proteins and the molecules.
~~wherein the molecules are preferably antibodies.~~

13. (Currently amended) A method of generating an antibody array which comprises

(a) bringing a protein array, as defined in made according to any one of claims 1 to 4
~~5 to 7~~, into contact with an antibody library, such that one or more proteins in the protein array bind to at least one antibody in the antibody library[.];

(b) removing any unbound antibodies; and

(c) immobilisation of those antibodies bound to proteins in the protein array.

14. (Original) A method for the screening of protein function or abundance which comprises the step of bringing an antibody array as defined in claim 13 into contact with a mixture of one or more proteins.

15. (Canceled)

16. (New) The method of claim 1 wherein the marker DNA sequence is inserted immediately preceding a stop codon of a target DNA sequence by:

(a) digesting the target DNA sequence such that it has a 5' overhang wherein the stop codon is comprised in the first three nucleotides counting from the 3' side of the overhang;

(b) annealing the marker DNA sequence to the overhang wherein the marker DNA sequence comprises a sequence complementary to the first four nucleotides of the overhang counting from the 3' side;

(c) ligating the marker DNA sequence to the target DNA sequence.

17. (New) The method of claim 1 wherein the marker DNA sequence is inserted immediately following a start codon of a target DNA sequence by;

(a) digesting the target DNA sequence such that it has a 5' overhang wherein the start codon is comprised in the first three nucleotides counting from the 3' side of the overhang;

(b) annealing the marker DNA sequence to the overhang wherein the marker DNA sequence comprises a sequence complementary to the first four nucleotides of the overhang counting from the 3' side;

(c) ligating the marker DNA sequence to the target DNA sequence.

18. (New) The method of any one of claims 1 to 4 wherein the protein array comprises serine proteases, kinases or p450 enzymes.

19. (New) The method of any one of claims 1 to 4 wherein said plurality of modified amino acid sequences are modified human amino acid sequences.

20. (New) The method of claim 1 wherein the marker moiety is selected from the group consisting of FLAG and Strep.

21. (New) The method of claim 1 or 2 wherein the marker moiety is post-translationally modified.

22. (New) The method of claim 21 wherein the post-translational modification comprises the addition of a biotin or a lipid molecule.
23. (new) The method of claim 1 wherein said modified amino acid sequences are folded into the correct conformation.
24. (new) The method of claim 1 wherein said inserting step inserts a marker DNA sequence in frame immediately following a start codon of each plurality target DNA sequence and immediately preceding a stop codon of each of a plurality of target DNA sequences, to form a plurality of modified DNA sequences which encode a plurality of modified amino acid sequences each comprising two marker moieties.
25. (new) A method of generating a proteomic array of proteins of unknown amino acid sequences comprising the steps of:
- (a) providing a cDNA library as a plurality of target DNA sequences; and
 - (b) generating a protein array using the method of any of claims 1 to 4 to produce a proteomic array of proteins of unknown amino acid sequence.
26. (new) The method of claim 12, wherein the molecules are antibodies.